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PATENT APPLICATION
Attorney's Do. No. 8371-112

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Amanda Hale-Wisener
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09645868.082400

Box Patent Application
Assistant Commissioner for Patents
Washington, DC 20231

Enclosed for filing is a patent application under 37 CFR 1.53(b) of: Philip Orrin Wheeler entitled USING A PAPER PREVIEW IN DOCUMENT MANAGEMENT APPLICATIONS

This application is a [ ] continuation, [ ] divisional, [ ] continuation-in-part of prior application Serial No. _____.

Enclosures:

[X] Specification (pages 1-7); claims (page 8); abstract (page 9)
[X] 4 sheets of formal drawings
[X] Declaration or Combined Declaration and Power of Attorney
  [X] Newly executed
  [ ] Copy from a prior application (37 CFR 1.63(d))
  [ ] Incorporation by Reference--The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
  [ ] Deletion of Inventors (signed statement attached deleting inventor(s) named in the prior application (37 CFR 1.63(d)(2) and 1.33(b)
[ ] Power of Attorney
[X] Assignment with cover sheet
[ ] Certified copy of priority document:

[ ] Information Disclosure Statement with Form PTO 1449
[ ] Copies of references listed on attached Form PTO-1449
[ ] Preliminary Amendment

| CLAIMS AS FILED | | | | |
|---|---|---|---|---|
| For | Number Filed | Number Extra | Rate | Basic Fee $690.00 |
| Total Claims | 4-20 | 0 | x $ 18.00 = | |
| Independent Claims | 1-3 | 0 | x $ 78.00 = | |
| Multiple Dependent Claim Fee | | | x $260.00 = | |
| TOTAL FILING FEE | | | | $690.00 |

[ ] Cancel in this divisional application original claims _____ of the prior application Serial No. _____ before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)

[X] A check in the amount of $730.00 to cover [X] filing fee ($690) and [X] assignment recordal fee ($40) is enclosed.

[X] Any deficiency or overpayment should be charged or credited to deposit account number 13-1703. A duplicate copy of this sheet is enclosed.

Customer No. 20575

Respectfully submitted,

MARGER JOHNSON
& McCOLLOM, P.C.

Julie L. Reed

Julie L. Reed
Registration No. 35,349

MARGER JOHNSON
& McCOLLOM, P.C.
1030 S.W. Morrison Street
Portland, OR 97205
(503) 222-3613

# USING A PAPER PREVIEW IN DOCUMENT MANAGEMENT APPLICATIONS

## BACKGROUND

1. Field

The field of this disclosure relates to printing devices, more particularly to a method and interface that provides a preview of the paper in the device prior to use.

2. Background

Printing devices, including printers, copiers and multi-function peripherals (MFPs) typically have at least one paper tray from which the device retrieves paper for printing. Many large networked printing devices have several paper trays. This can cause inconvenience to users, especially if the user desires to use a specialty paper.

This inconvenience typically results from the user loading specialty paper in one of the paper trays in the device, returning to his or her desk and then not being able to remember or locate the tray in which the specialty paper was loaded. The specialty paper could be letterhead, colored paper or other types.

Current printers and copiers may have small guides that allow the printing device to receive information as to the size and orientation of the paper. However, this does not assist in the situation where the paper is of a standard size but has some other special characteristic. Typically, the user interface presented to the user to print documents includes a specification of the paper size.

Other information is available through user interfaces. Most users are familiar with the 'print preview' or similar options in several document creation packages, such as Microsoft® Word®, Excel®, Access®, WordPerfect®, etc. An example of such a feature is shown in US Patent No. 5,680,629, issued October 21, 1997.

Other methods of previewing print jobs are also possible. For example, one method of showing the user a representation of the printed output is described in US Patent No. 5,963,216, issued October 5, 1999. In this example, the calls to the printer driver are converted to calls to a display driver and the results are shown on a display device viewable by the user. Typically, control of the printing device is done through a user interface with the printer driver, familiar to most users of personal computers. A more detailed discussion of

printer drivers and updating and maintaining them is shown in US Patent Application 5,580,177, issued December 3, 1996.

Interaction with the printer drivers typically starts with a user interface opening and establishing a window through which the computer user interacts with the driver to provide the output the user desires. Selections such as paper tray, including those with different sized papers, orientation of the printed output on the paper, number of copies, collation options, etc., are provided to the user. However, there is no means to offer the user information about the content of the paper stock. The content refers to the visual characteristics of the paper, such as color, pre-printed information like a letterhead, etc., rather than physical characteristics such as size and orientation.

Therefore, a need exists for a method to provide information about the visual characteristics of the paper in a printing device.

## SUMMARY

One embodiment of the invention is a method of using a document management application to provide a preview of paper available in a printer. The user would acquire an image of the paper, more than likely from a scanner. The user would then add this scanned image to a library of document images in a document management application. The image scanned image of the paper could then be associated with a particular paper tray on a printer through the document management application. The new information would be used to update the user interface for that printer to allow users to preview the paper in the printer tray(s).

## BRIEF DESCRIPTION OF THE DRAWINGS

The invention may be best understood by reading the detailed description with reference to the drawing(s), wherein:

Figure 1 shows a prior art user interface for a printer driver.

Figure 2 shows a user interface for a printer driver, in accordance with the invention.

Figures 3 and 3a show a flowchart for one embodiment of a method of providing information about visual characteristics of the paper in a printing device, in accordance with the invention.

Figure 4 shows a flowchart for a first alternative embodiment of a method of providing information about visual characteristics of the paper in a printing device, in accordance with the invention.

Figure 5 shows one embodiment of a user interface into which an image of the paper to be used in a printing device can be scanned, in accordance with the invention.

Figure 6 shows a flowchart for a second alternative embodiment of a method of providing information about visual characteristics of the paper in a printing device, in accordance with the invention.

Figure 7 shows an embodiment of a printing device with a scanning path for recording information about the paper used in the printing device, in accordance with the invention.

## DETAILED DESCRIPTION OF THE EMBODIMENTS

Figure 1 shows an example of a prior art printer driver interface. This particular interface was selected by selecting Print from the File menu in MS-Word®, and then selecting the Properties button on the resulting window 10. As can be seen, the paper size is shown in the inner window 12. In this example, there was only one printer attached and that printer did not have multiple trays. In a networking environment, there will be more than one printer, and several of these networked printers have several trays.

As mentioned previously, a problem can occur when a user loads a specialty paper into one of the trays on a networked or remotely connected printer and then cannot remember the tray in which that paper was loaded. As can be seen by the inner window 14, it is possible for the user to select the tray, but that is not helpful unless the user can 'see' the paper in the bin. There may be several trays carrying letter-sized (8 ½ inch by 11 inch) paper, for example, and the user may not remember or know what tray the colored paper is in.

One embodiment of a user interface in accordance with the invention is shown in Figure 2. The window 20 is for a specific printer, shown by the information line 24. However, this interface may afford the user a unique view of the paper stock in a particular tray. The area 22 would have the color of the specialty paper, for example, canary yellow. The color may be automatically loaded because of the selection of the paper tray selected in the paper tab 26, similar to that shown in Figure 1.

This user interface is an example of one that takes information related to the visual contents of the paper and provides it to the user. Again, as used here the visual contents or characteristics refer to characteristics of the surface of the paper, such as letterhead symbols,

color, etc. These are different from the physical characteristics of the paper such as its size or orientation.

There are several options as to how the information about the visual characteristics is provided to the system and/or the user. One such method is shown in flowchart form in Figure 3. In this method, the information to be provided to a user accessing the printing device is entered in a somewhat manual manner. A particular type of paper is loaded into the tray at 30. The person loading the paper then provides the information at 32.

This could be done in one of several ways. After the paper is loaded, for example, the person loading the paper could access the control interface on the control panel of the printing device. A set of menus would be provided with a list of specialty papers. This list could be a list of colors, letterhead formats, templates for standardized forms, etc. The loader then selects the type of paper loaded. The printing device then updates the user interface presented to users at 34 trying to print from that device, to show the particular visual characteristics for the paper. In addition, the loader may need to designate into which tray the paper was placed.

In an alternative example, the loader could select a piece of paper from the newly loaded tray and scan it with a resident scanner on a copier or multi-function peripheral. The user interface would offer a 'paper' option on the menu. The loader would select that option, place the paper down on the scanning platen and the system would scan the paper. The loader would then be offered the option of designating the tray into which that paper has been loaded. This would then provide the information about the paper at 32, and the process would continue at 34.

As will be discussed in more detail later, it is possible that the printing device may sense the replacement of the tray and could start the process of associating a certain paper characteristic with a certain tray. For example, the printing device may assume that the tray replaced by the loader has new paper in it and may launch the control interface. This leaves the loader only the task of designating the characteristics of the paper in that tray.

One embodiment of a method of providing user interface updated in the process of Figure 3, as well as any alternative methods, is shown in Figure 3a. When the user accesses the printer options or set up menu, similar to that shown in Figures 1 and 2, a window is established. The window allows the user to interact with the printer driver in a convenient manner. Once the window is established, the user is presented with a view of the paper in the currently selected paper tray. The view could be a color block to demonstrate the color of the

paper, a thumbnail sketch of the paper, or a template. Templates would typically used for such things as forms.

The method of providing a user interface, shown by example in Figure 3a may apply to any methods of providing information about the visual characteristics of paper in a printing device. A first alternative method of acquiring the necessary information prior to providing it to the user is shown in Figure 4.

In this embodiment, it is assumed that the user has access to a scanning device. The scanning device may be in the same housing as the printing device, such as in a copier or multi-function peripheral. The scanning device may also be a stand-alone scanner, or a scanner attached to a workstation on the network.

The user scans a piece of the paper to be loaded at 40. This will create an image of the paper in some form that can be transported from the scanner. The user would then access a document management software package at 42. The document management software would then allow the user to associate the scan data, or scan, with a particular tray of the printing device at 44. The printing device user interface would then be updated to include the scanned image at 46. The user can then load the paper into the device, or if it is already loaded, access the user interface of the printing device. The user interface would now include an image of the paper in that particular tray, where the image presented is that transported through the document management package.

An example of a user interface for a document management packages is shown in Figure 5. Examples of these packages include SharpDesk™ and Adobe Acrobat®. Any document management application that can manage scanned images can be used. A window 82 is established on a display device 80. The document management application window may have several types of documents. The image of the scanned paper created by a process such as that discussed above would be treated as a document by this application. For example, the image of the scanned paper 84 would be listed among the other documents by the package. This image could then be associated with a tray on a printer after the paper was loaded into the printer.

All of the above embodiments would more than likely be distributed as software contained upon some type of computer readable medium, such as a printer driver. In some cases the computer would be a host computer or network server that would access the software and load it into the printer. In other instances, the computer would be the processor in the printing device. It could download the file across the network.

In some instances, the printing device may have a scanning device in the same system housing. This would be true for printing devices that are part of copying systems and multi-function peripheral systems, as examples. In this example, the scanning device is used to produce the image, and the user interface on the system would include the ability to associate a scan with a particular tray.

The user would remove the tray and load it with the new paper at 50. When the tray is replaced, the system would sense the replacement at 52 and automatically start a paper scanning process. If the paper loaded is the same as the paper already in the tray, the system may offer an override option to prevent the paper scanning process. Alternatively, the system may inquire of the user about starting the paper scanning process.

Once the system has launched the paper scanning process, it will take a piece of paper from the replaced tray at 54. It will then alter the paper path, which will be discussed in more detail with reference to Figure 7, to route the paper past the scanning device. The scanning device will then scan the paper at 56. The resulting information will be used to update the user interface at 58. Once the paper scanning process is completed, the system will adjust operation for the paper from the tray to travel its normal printing path, rather than the scanning path.

An example of such a system with alterable paper paths 60 in accordance with the invention is shown in Figure 7. The paper tray 62 is loaded and replaced. The system then senses the replacement and launches the paper scanning process. Prior to altering the paper path as part of the scanning process, the paper would normally be picked up from the tray and sent along path 64 past whatever mechanism is used to transfer the image to the paper. In this example, an electrophotographic printing process, the paper passes by an optical photoreceptor (OPC) upon which lies a toner image. This is then transferred to the paper and fused to the paper by fusing rollers, not shown. The resulting printed paper is then sent to the output tray 78.

However, upon launching the paper scanning process, the paper path will be changed to pass the paper by the scanning device. This can be done in several ways. One example of such an altered path is shown in Figure 7. Additional pickup rollers 68a and 68b are mounted on moveable axles that allow them to be moved into place when the paper enters the paper path 64. These will then alter the path of the paper to travel upwards to a second set of rollers 70a and 70b. The paper will then be redirected to pass in front of the platen 74 by redirection rollers 72a and 72b. After the paper is scanned, it is passed to the output tray by rollers 76a

and 76b. All of these rollers could be adjustable, so they can be moved out of the way of the paper when not needed. Alternatively, none of them would move, or some of them would move while others would not.

This is just one example of a printing system in which the paper from the output tray could be sent along an alternative path. The alternative path would allow the scanning device in the system to scan the paper. It should be configured so as not to affect system performance during operations other than paper scanning. Additionally, the example is for an electrophotographic system, but could apply to any type of print engine.

Thus, although there has been described to this point a particular embodiment for a method and structure for a user interface that offers a preview of the paper in a printing device it is not intended that such specific references be considered as limitations upon the scope of this invention except in-so-far as set forth in the following claims.

Docket No. 8371-112

WHAT IS CLAIMED IS:

1. A method of updating a user interface of a printer, the method comprising:
   a) scanning a representative piece of paper creating a scanned image of paper to be placed in a print tray of the printer;
   b) accessing a document management application to locate and include the scanned image in the application;
   c) associating the scanned image with the print tray of the printer using the document management application; and
   d) updating the user interface to reflect the association.
2. The method of claim 1 wherein the scanning is performed by a stand-alone scanner.
3. The method of claim 1 wherein the document management application is SharpDesk™.
4. The method of claim 1 wherein the document management application is Adobe Acrobat®.

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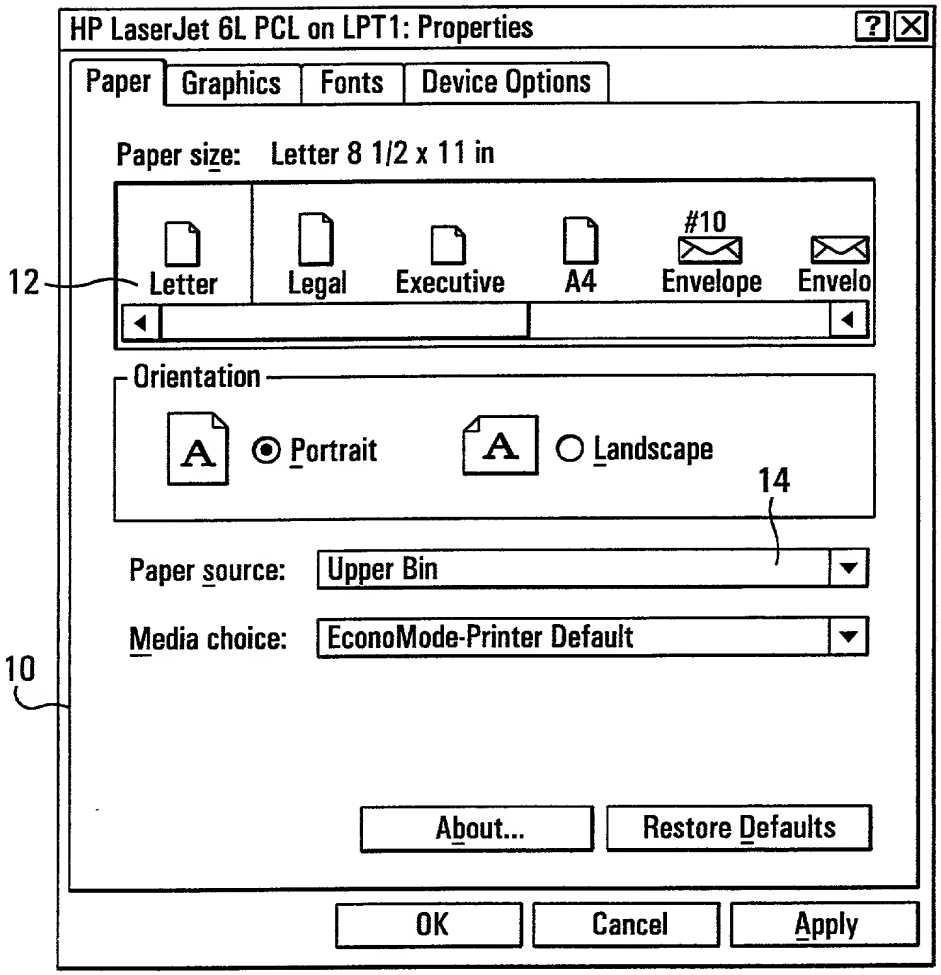
# USING A PAPER PREVIEW IN DOCUMENT MANAGEMENT APPLICATIONS

## ABSTRACT

A method of using a document management application to update a user interface for a printer. The method includes scanning the paper from a paper tray of a printer and accessing the resulting scanned image from a document management application. The document management application will then allow the scanned image to be associated with the paper tray and the user interface updated to reflect the new information.

Docket No. 8371-112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Graphics
Fonts
Device Options
Paper size: Letter 8 1/2 x 11 in
Letter
Legal
Executive
A4
#10
Envelope
Envelo
12
Orientation
Portrait
Landscape
14
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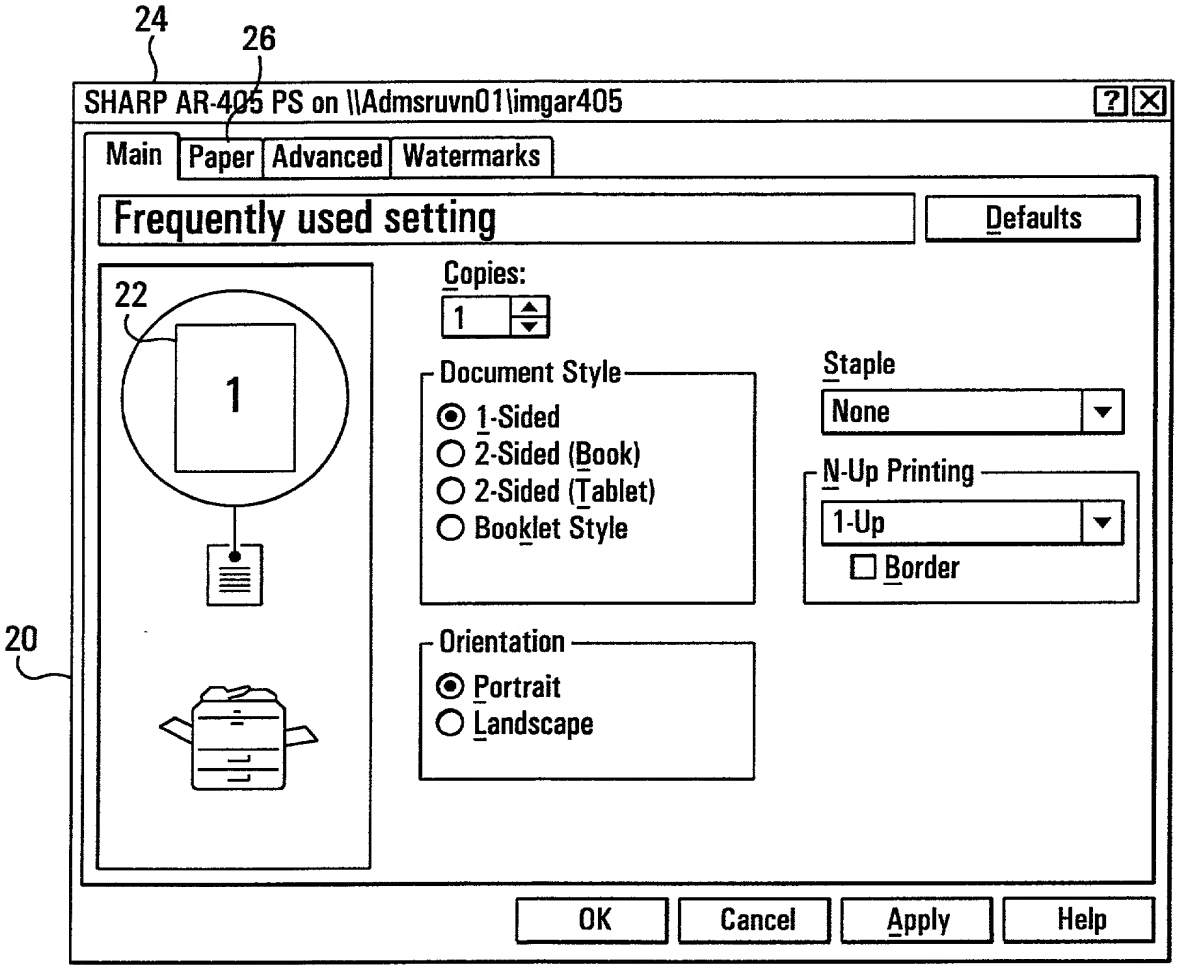
Upper Bin
Media choice:
EconoMode-Printer Default
10
About...
Restore Defaults
OK
Cancel
Apply

FIG.1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26
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Watermarks
Frequently used setting
Defaults
22
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Copies:
1
Document Style
1-Sided
2-Sided (Book)
2-Sided (Tablet)
Booklet Style
Staple
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N-Up Printing
1-Up
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Orientation
Portrait
Landscape
20
OK
Cancel
Apply
Help

FIG.2

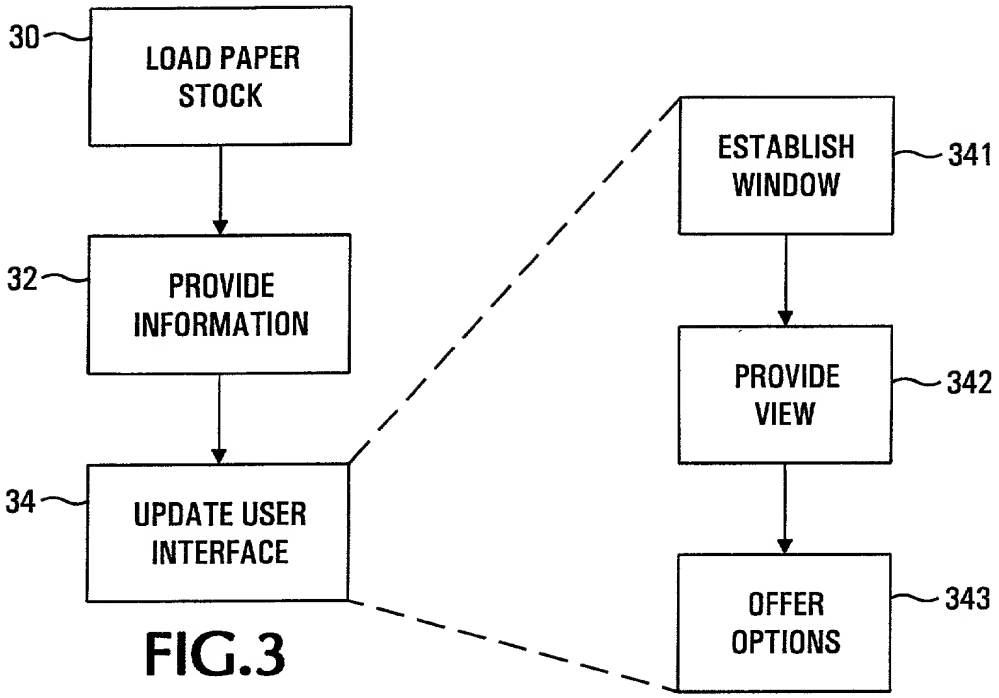


FIG.3




FIG.3a

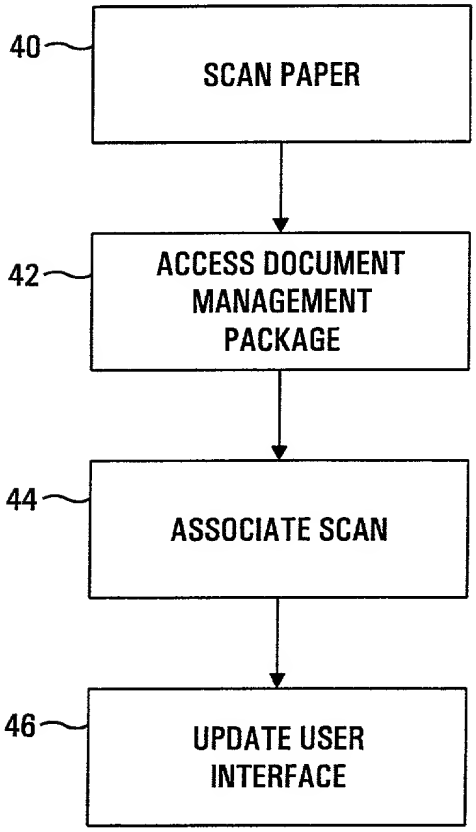


FIG.4

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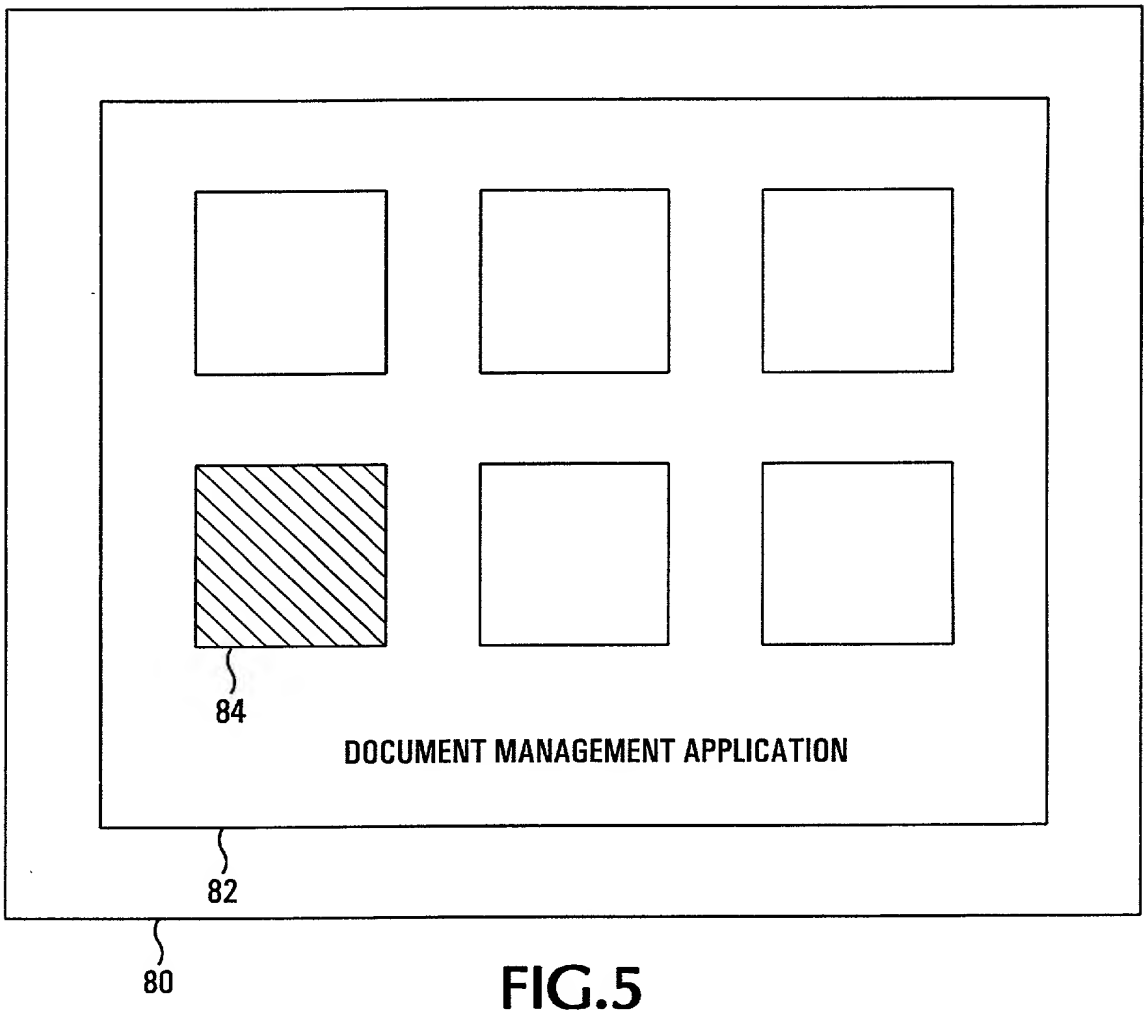


FIG.5

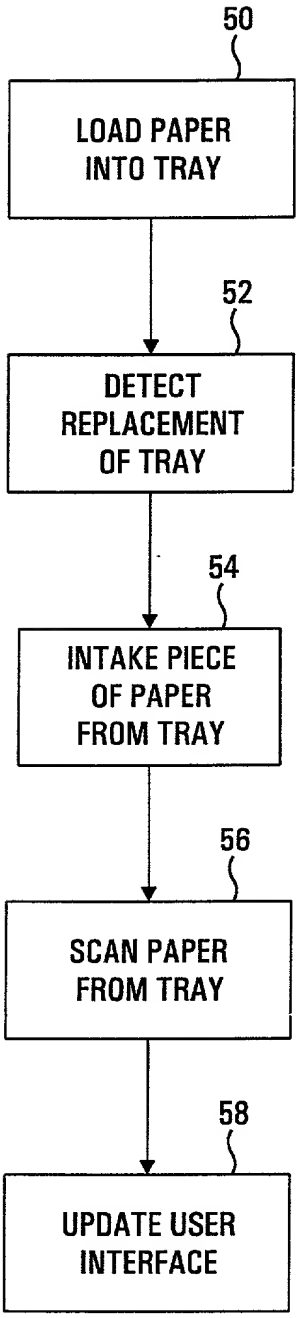
50
LOAD PAPER INTO TRAY
52
DETECT REPLACEMENT OF TRAY
54
INTAKE PIECE OF PAPER FROM TRAY
56
SCAN PAPER FROM TRAY
58
UPDATE USER INTERFACE

FIG.6

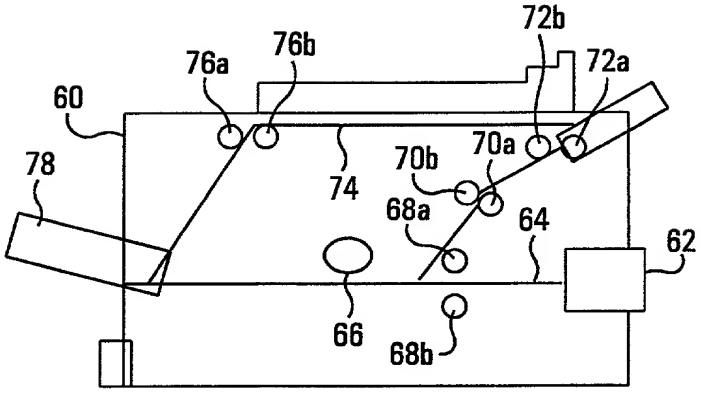
72b
76a
76b
72a
60
70b
70a
78
74
68a
64
62
66
68b

FIG.7

PATENT APPLICATION
Attorney Docket No. 8371-112

# COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled USING A PAPER PREVIEW IN DOCUMENT MANAGEMENT APPLICATIONS, the specification of which:

[x] is attached hereto.
[ ] was filed on _____ as Application No. _____
[ ] and was amended on _____(if applicable)
[ ] with amendments through _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, Sec. 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Sec. 119 (a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed:

| Prior Foreign Application(s) | | | Claiming Priority? | |
|---|---|---|---|---|
| _____ | _____ | _____ | [ ] | [ ] |
| (Number) | (Country) | (Day/Month/Year Filed) | Yes | No |

I hereby claim the benefit under Title 35, United States Code, Sec. 119(e) of any United States provisional application listed below:

| Provisional Application No. | Filing Date |
|---|---|
| _____ | _____ |

I hereby claim the benefit under Title 35, United States Code, Sec. 120 or §365(c) of any PCT international application designating the United States of America listed below and,

insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Sec. 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Sec. 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

| (Application No.) | (Filing Date) | (Status) (patented, pending, abandoned) |
|---|---|---|

I hereby appoint the following attorneys to prosecute the application, to file a corresponding international application, to prosecute and transact all business in the Patent and Trademark Office connected therewith:

Customer No. 20575

| Attorney Name | Registration No. |
|---|---|
| Jerome S. Marger | 26,480 |
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| James G. Stewart | 32,496 |
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| Stephen S. Ford | 35,139 |
| Julie L. Reed | 35,349 |
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| Scott A. Schaffer | 38,610 |
| Joseph S. Makuch | 39,286 |
| James E. Harris | 40,013 |
| Graciela G. Cowger | 42,444 |
| Ariel Rogson | 43,054 |
| Craig R. Rogers | 43,888 |

Direct all telephone calls to Julie L. Reed at (503) 222-3613 and send all correspondence to:

Julie L. Reed
MARGER JOHNSON & McCOLLOM, P.C.
1030 S.W. Morrison Street
Portland, Oregon 97205

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole inventor: Philip Orrin Wheeler

Inventor's signature: Philip Orrin Wheeler

Aug 11, 2000
(Date)

Residence: Camas, Washington

Citizenship: United States

Post Office address: 3333 NW 33rd Ave., Camas, Washington 98607

Docket No. 50277-0036

# United States Patent & Trademark Office

Office of Initial Patent Examination -- Scanning Division

SCAN 12

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